REMARKS

Claims 1, 4-7, 9-16, 18-21 and 23-26 are now present in this application.

Claims 2, 3, 8, 17 and 22 have been canceled. Claims 1, 4-6, 14-16 and 18-20 have been amended. Reconsideration of the application, as amended, is respectfully requested.

Claims 1-26 stand rejected under 35 USC 102(b) as being anticipated by Japanese document No. 6-171236. This rejection is respectfully traversed.

Claims 1-7, 9, 10, 12, 14-21 and 23-26 stand rejected under 35 USC 102(b) as being anticipated by NAKANE et al., U.S. Patent 4,587,533. This rejection is respectfully traversed.

The Japanese '236 document discloses an optical recording medium comprising a recording layer 3 laminated on the upper surface of a substrate 1 through a heat-resistant protective layer 2. The recording layer is formed from an Al or Au layer 3-2 and a Ge layer 3-1, wherein at the time of recording the Al/Au and Ge layers are mutually thermally diffused to generate a reflectivity difference. In the present invention, the optical recording medium of independent claim 1 comprises a substrate, a transparent layer disposed on the substrate, and a reflecting layer disposed on the transparent layer, which is optically reactive with the transparent layer and form a semi-transparent reflective area of alloy/compound near the interface of transparent layer and reflecting layer after the optical recording medium is exposed to the optical beam,

wherein the semi-transparent reflective area is able to activate a mechanism that produces optical contrast before and after recording.

The Japanese '236 document does not disclose a semi-transparent reflective area of alloy/compound formed by the transparent layer and the reflecting layer, Instead, it only discloses that the optical contrast after recording via the reaction between Al/Au and Ge layers is elevated, not lowered, thereby making it incompatible with the specifications of signal modulation of current optical recording media and limiting its applications. Accordingly, the claimed features of the present invention are capable of both lowering and elevating optical contrast and achieving better performance in the invention, and should not be considered as anticipated by or obvious in view of the Japanese '236 document.

NAKANE et al. discloses an information recording medium for use with focused laser beams modulated with information signals comprising a substrate having a two-layer recording layer, a first layer being transparent to laser beams and a second layer being composed of a metal at least predominantly composed of a low melting metal which absorbs the laser beams and readily forms an alloy with the material of the first layer. The second layer is a low melting metal which absorbs the laser beams to be heated sufficiently to alloy to the first layer to form an alloy with the first layer thereby changing the conditions for the repetitive

multiple reflections and carrying out the recording of the information.

Furthermore the recording media and mechanism of NAKANE et al. is not the same as the present invention. In NAKANE et al., the recording media is an alloy formed from the first and second layers, thereby indicating that the first and the second layer must be metal. In the present invention, however, the semi-transparent area activating the information-recording mechanism can be not only alloy, but also compounds resulting from reaction. To more specifically differentiate the present invention from NAKANE et al., the limitations from claim 8 have been incorporated into independent claim 1 of the present invention.

Also, compared with the information-recording mechanism of NAKANE et al., in which only reflective change is utilized, the information-recording mechanism of the present invention a) reduces the effective thickness of the transparent layer, altering the respective optical path lengths, and resulting in a shift of constructive or destructive interference patterns; and/or b) transforms the optical constants (n and k) and thus the reflective intensity; and/or c) alters the polarization angle, which not only changes the conditions for the repetitive multiple reflections. Therefore, the present invention should not be considered anticipated by or obvious in view of NAKANE et al.

In view of the foregoing amendments and remarks, it is respectfully submitted that independent claim 1 and its dependent

claims are neither taught nor suggested by the prior art utilized by the Examiner. Accordingly, reconsideration and withdrawal of all rejections are respectfully requested.

Favorable reconsideration and an early Notice of Allowance are earnestly solicited.

In the event that any outstanding matters remain in this application, the Examiner is invited to contact the undersigned at (703) 205-8000 in the Washington, D.C. area.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachment: Version with Markings to Show Changes Made

(Rev. 02/20/02)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Claims 2, 3, 8, 17 and 22 have been canceled without prejudice or disclaimer of the subject matter contained therein.

The claims have been amended as follows:

1. (Amended) An optical recording medium for recording and retrieving information with an optical beam comprising:

a substrate;

a transparent layer comprising a material selected from the group consisting of Si, Ge, GaP, IP, GaAs, InAs, GaSb, InSb, In-Sn oxide, tin oxide, indium oxide, zinc oxide, titanium oxide, Sb-Sn oxide, or combinations thereof disposed on the substrate; and

a reflecting layer [optically reactive with the transparent layer disposed on the transparent layer] disposed on the transparent layer, which is optically reactive with the transparent layer and form s a semi-transparent reflective area of alloy/compound near the interface of transparent layer and reflecting layer after the optical recording medium is exposed to the optical beam, wherein the semi-transparent reflective area activates a mechanism that produces optical contrast before and after recording.

4. (Amended) The optical recording medium of claim [2] 1, wherein the mechanism [semi-transparent reflective area] distorts optical constants (n & k) and thereby alters the overall reflective intensity.

5. The optical recording medium of claim [2] 1, wherein the [semi-transparent reflective area] mechanism reduces the effective thickness of the transparent layer and changes the optical-path of

the incident and reflected light from the optical beam, thereby shifting constructive or destructive interference and altering the reflective intensity by the semi-transparent reflective area.

6. (Amended) The optical recording medium of claim [2] 1, wherein the [semi-transparent reflective area] mechanism transforms the polarization angle and thereby alters the reflective intensity by the semi-transparent reflective area.

14. (Amended) The optical recording medium of claim [2] 1, wherein the semi-transparent reflective area is more reflective than the reflecting layer.

15. (Amended) The optical recording medium of claim [2] 1, wherein the semi-transparent reflective area is less reflective than the reflecting layer.

16. (Amended) A method of optically recording information on an optical recording medium comprising a substrate, a transparent layer comprising a material selected from the group consisting of Si, Ge, GaP, InP, GaAs, InAs, GaSb, InSb, In-Sn oxide, tin oxide, indium oxide, zinc oxide, titanium oxide, Sb-Sn oxide, or combinations thereof disposed on the substrate, and a reflecting layer optically reactive with the transparent layer disposed on the transparent layer, which comprises irradiating the transparent layer and reflecting layer with an optical beam to form a semi-transparent reflective area of alloy/compound therebetween, wherein the semi-transparent reflective area is able to activate a mechanism that produces optical contrast before and after recording.

18. (Amended) The method as claimed in claim 16, wherein the [semi-transparent reflective area] mechanism distorts optical constants (n & k) and thereby alters the overall reflective intensity by the semi-transparent reflective area.

19. (Amended) The method as claimed in claim 16, wherein the [semi-transparent reflective area] mechanism reduces the effective thickness of the transparent layer and changes the optical-path of the incident and reflected light from the optical beam, thereby shifting constructive or destructive interference and altering the reflective intensity by the semi-transparent reflective area.

20. (Amended) The method as claimed in claim 16, wherein the [semi-transparent reflective area] mechanism transforms the polarization angle and thereby alters the reflective intensity by the semi-transparent reflective area.